

WHAT IS CLAIMED IS:

Sub 7 1. An ink for an ink jet comprising a coloring composition comprising:

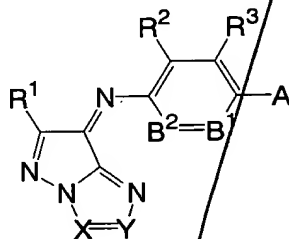
(a) a dispersion medium; and

(b) coloring particulates comprising:

(b-1) a polymer which is selected from the group consisting of polyurethanes, polyesters, polyamides, polyureas and polycarbonates; and

(b-2) an oil-soluble dye represented by formula (1):

Formula (1)



wherein R<sup>1</sup> represents a hydrogen atom, aliphatic group, aromatic group, heterocyclic group, cyano, -OR<sup>11</sup>, -SR<sup>12</sup>, -CO<sub>2</sub>R<sup>13</sup>, -OCOR<sup>14</sup>, -NR<sup>15</sup>R<sup>16</sup>, -CONR<sup>17</sup>R<sup>18</sup>, -SO<sub>2</sub>R<sup>19</sup>, -SO<sub>2</sub>NR<sup>20</sup>R<sup>21</sup>, -NR<sup>22</sup>CONR<sup>23</sup>R<sup>24</sup>, -NR<sup>25</sup>CO<sub>2</sub>R<sup>26</sup>, -COR<sup>27</sup>, -NR<sup>28</sup>COR<sup>29</sup> or -NR<sup>30</sup>SO<sub>2</sub>R<sup>31</sup>, and R<sup>11</sup>, R<sup>12</sup>, R<sup>13</sup>, R<sup>14</sup>, R<sup>15</sup>, R<sup>16</sup>, R<sup>17</sup>, R<sup>18</sup>, R<sup>19</sup>, R<sup>20</sup>, R<sup>21</sup>, R<sup>22</sup>, R<sup>23</sup>, R<sup>24</sup>, R<sup>25</sup>, R<sup>26</sup>, R<sup>27</sup>, R<sup>28</sup>, R<sup>29</sup>, R<sup>30</sup> and R<sup>31</sup> each represents independently a hydrogen atom, aliphatic group or

aromatic group; wherein A represents  $-NR^4R^5$  or a hydroxyl group, and  $R^4$  and  $R^5$  each represents independently a hydrogen atom, aliphatic group, aromatic group or heterocyclic group; wherein  $B^1$  represents  $=C(R^6)-$  or  $=N-$  and  $B^2$  represents  $-C(R^7)=$  or  $-N=$ ; wherein  $R^2$ ,  $R^3$ ,  $R^6$  and  $R^7$  each represents independently a hydrogen atom, halogen atom, aliphatic group, aromatic group, heterocyclic group, cyano,  $-OR^{51}$ ,  $-SR^{52}$ ,  $-CO_2R^{53}$ ,  $-OCOR^{54}$ ,  $-NR^{55}R^{56}$ ,  $-CONR^{57}R^{58}$ ,  $-SO_2R^{59}$ ,  $-SO_2NR^{60}R^{61}$ ,  $-NR^{62}CONR^{63}R^{64}$ ,  $-NR^{65}CO_2R^{66}$ ,  $-COR^{67}$ ,  $-NR^{68}COR^{69}$  or  $-NR^{70}SO_2R^{71}$ , and  $R^{51}$ ,  $R^{52}$ ,  $R^{53}$ ,  $R^{54}$ ,  $R^{55}$ ,  $R^{56}$ ,  $R^{57}$ ,  $R^{58}$ ,  $R^{59}$ ,  $R^{60}$ ,  $R^{61}$ ,  $R^{62}$ ,  $R^{63}$ ,  $R^{64}$ ,  $R^{65}$ ,  $R^{66}$ ,  $R^{67}$ ,  $R^{68}$ ,  $R^{69}$ ,  $R^{70}$  and  $R^{71}$  each represents independently a hydrogen atom, aliphatic group or aromatic group; wherein  $R^2$  and  $R^3$ ,  $R^3$  and  $R^4$ ,  $R^4$  and  $R^5$ ,  $R^5$  and  $R^6$ , or  $R^6$  and  $R^7$  may be mutually bound to form a ring; wherein X and Y each represents independently  $C(R^8)=$  or  $N=$ ,  $R^8$  represents a hydrogen atom, aliphatic group or aromatic group, either X or Y shall represent  $N=$ , and X and Y shall not be simultaneously  $-N=$ ; and wherein the formula (1) satisfies at least one of following (i) to (v):

(i) A represents  $-NR^4R^5$ ,  $R^4$  and  $R^5$  each represents independently a  $C_{1-18}$  alkyl group having a substituent group, the substituent group is at least one member selected from the group consisting of a heterocyclic group, cyano,  $-OR^{141}$ ,  $-SR^{142}$ ,  $-CO_2R^{143}$ ,  $-OCOR^{144}$ ,  $-NR^{145}R^{146}$ , -

Sub  
R<sup>1</sup>  
Cont.

$\text{CONR}^{147}\text{R}^{148}$ ,  $-\text{SO}_2\text{R}^{149}$ ,  $-\text{SO}_2\text{NR}^{150}\text{R}^{151}$ ,  $-\text{NR}^{152}\text{CONR}^{153}\text{R}^{154}$ ,  $-\text{NR}^{155}\text{CO}_2\text{R}^{156}$ ,  
 $-\text{COR}^{157}$ ,  $-\text{NR}^{158}\text{COR}^{159}$  and  $-\text{NR}^{160}\text{SO}_2\text{R}^{161}$ , and  $\text{R}^{141}$ ,  $\text{R}^{142}$ ,  $\text{R}^{143}$ ,  $\text{R}^{144}$ ,  $\text{R}^{145}$ ,  
 $\text{R}^{146}$ ,  $\text{R}^{147}$ ,  $\text{R}^{148}$ ,  $\text{R}^{149}$ ,  $\text{R}^{150}$ ,  $\text{R}^{151}$ ,  $\text{R}^{152}$ ,  $\text{R}^{153}$ ,  $\text{R}^{154}$ ,  $\text{R}^{155}$ ,  $\text{R}^{156}$ ,  $\text{R}^{157}$ ,  $\text{R}^{158}$ ,  $\text{R}^{159}$ ,  $\text{R}^{160}$   
and  $\text{R}^{161}$  each represents independently a hydrogen atom, aliphatic group  
or aromatic group;

(ii)  $\text{R}^2$  represents a substituted alkyl group;

(ii)'  $\text{R}^7$  represents a substituted alkyl group;

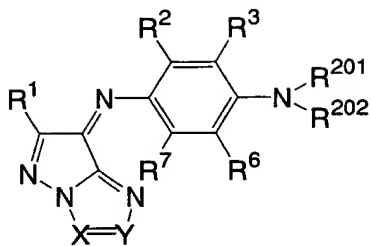
(iii)  $\text{R}^8$  represents an aryl group having 2 or more substituent  
groups;

(iv) Two or more substituent groups represented by  $-\text{NR}^{170}\text{SO}_2\text{R}^{171}$   
are present in the molecule, and  $\text{R}^{170}$  and  $\text{R}^{171}$  each represents  
independently a hydrogen atom, aliphatic group or aromatic group; and

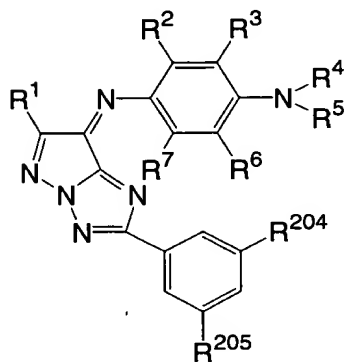
(v) One or more carboxyl groups are present in the molecule.

2. An ink for an ink jet according to claim 1, wherein the oil-  
soluble dye is at least one compound represented by any one of formulae  
(2-1) to (2-5):

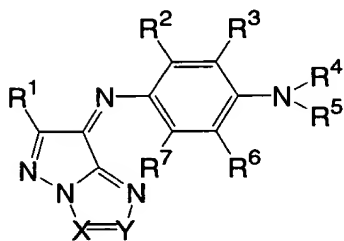
(2-1)



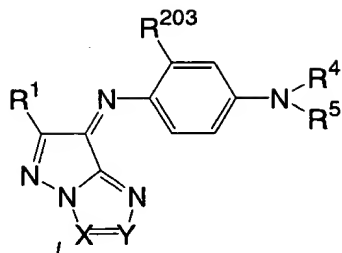
(2-3 a)



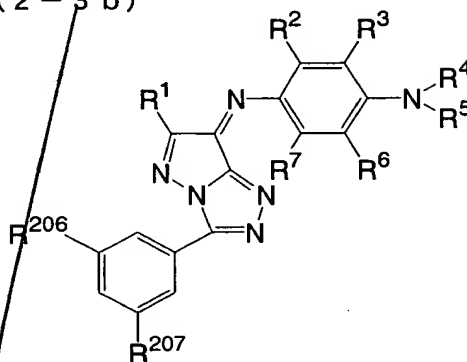
(2-4)



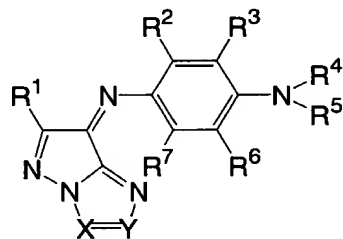
(2-2)



(2-3 b)



(2-5)



wherein in the formulae (2-1) to (2-5) X, Y, R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> have the same meanings as defined above in the formula (1);  
wherein in the formula (2-1) R<sup>201</sup> and R<sup>202</sup> each represents a C<sub>1-18</sub> alkyl group having a substituent group, the substituent group is at least one member selected from the group consisting of a heterocyclic group, cyano, -OR<sup>141</sup>, -SR<sup>142</sup>, -CO<sub>2</sub>R<sup>143</sup>, -OCOR<sup>144</sup>, -NR<sup>145</sup>R<sup>146</sup>, -CONR<sup>147</sup>R<sup>148</sup>, -

$\text{SO}_2\text{R}^{149}$ ,  $-\text{SO}_2\text{NR}^{150}\text{R}^{151}$ ,  $-\text{NR}^{152}\text{CONR}^{153}\text{R}^{154}$ ,  $-\text{NR}^{155}\text{CO}_2\text{R}^{156}$ ,  $-\text{COR}^{157}$ ,  $-\text{NR}^{158}\text{COR}^{159}$  and  $-\text{NR}^{160}\text{SO}_2\text{R}^{161}$ , and  $\text{R}^{141}$ ,  $\text{R}^{142}$ ,  $\text{R}^{143}$ ,  $\text{R}^{144}$ ,  $\text{R}^{145}$ ,  $\text{R}^{146}$ ,  $\text{R}^{147}$ ,  $\text{R}^{148}$ ,  $\text{R}^{149}$ ,  $\text{R}^{150}$ ,  $\text{R}^{151}$ ,  $\text{R}^{152}$ ,  $\text{R}^{153}$ ,  $\text{R}^{154}$ ,  $\text{R}^{155}$ ,  $\text{R}^{156}$ ,  $\text{R}^{157}$ ,  $\text{R}^{158}$ ,  $\text{R}^{159}$ ,  $\text{R}^{160}$  and  $\text{R}^{161}$  each represents independently a hydrogen atom, aliphatic group or aromatic group; wherein in the formula (2-2)  $\text{R}^{203}$  represents a  $\text{C}_{1-10}$  substituted alkyl group; wherein in the formulae (2-3a) and (2-3b),  $\text{R}^{204}$ ,  $\text{R}^{205}$ ,  $\text{R}^{206}$  and  $\text{R}^{207}$  each represents independently a cyano or a group having no more than  $\text{C}_{100}$  selected from the group consisting of an aliphatic group, aromatic group, heterocyclic group,  $-\text{OR}^{211}$ ,  $-\text{SR}^{212}$ ,  $-\text{CO}_2\text{R}^{213}$ ,  $-\text{OCOR}^{214}$ ,  $-\text{NR}^{215}\text{R}^{216}$ ,  $-\text{CONR}^{217}\text{R}^{218}$ ,  $-\text{SO}_2\text{R}^{219}$ ,  $-\text{SO}_2\text{NR}^{220}\text{R}^{221}$ ,  $-\text{NR}^{222}\text{CONR}^{223}\text{R}^{224}$ ,  $-\text{NR}^{225}\text{CO}_2\text{R}^{226}$ ,  $-\text{COR}^{227}$ ,  $-\text{NR}^{228}\text{COR}^{229}$  and  $-\text{NR}^{230}\text{SO}_2\text{R}^{231}$ , and  $\text{R}^{211}$ ,  $\text{R}^{212}$ ,  $\text{R}^{213}$ ,  $\text{R}^{214}$ ,  $\text{R}^{215}$ ,  $\text{R}^{216}$ ,  $\text{R}^{217}$ ,  $\text{R}^{218}$ ,  $\text{R}^{219}$ ,  $\text{R}^{220}$ ,  $\text{R}^{221}$ ,  $\text{R}^{222}$ ,  $\text{R}^{223}$ ,  $\text{R}^{224}$ ,  $\text{R}^{225}$ ,  $\text{R}^{226}$ ,  $\text{R}^{227}$ ,  $\text{R}^{228}$ ,  $\text{R}^{229}$ ,  $\text{R}^{230}$  and  $\text{R}^{231}$  each represents independently a hydrogen atom, aliphatic group or aromatic group; wherein in the formula (2-4) at least one of  $\text{R}^1$ ,  $\text{R}^2$ ,  $\text{R}^3$ ,  $\text{R}^4$ ,  $\text{R}^5$ ,  $\text{R}^6$ ,  $\text{R}^7$  and  $\text{R}^8$  has substituent groups represented by  $-\text{NR}^{271}\text{SO}_2\text{R}^{272}$ , two or more substituent groups represented by  $-\text{NR}^{271}\text{SO}_2\text{R}^{272}$  are contained in the molecule, and  $\text{R}^{271}$  and  $\text{R}^{272}$  each represents independently a hydrogen atom, aliphatic group or aromatic group; and wherein in the formula (2-5) at least one of  $\text{R}^1$ ,  $\text{R}^2$ ,  $\text{R}^3$ ,  $\text{R}^4$ ,  $\text{R}^5$ ,  $\text{R}^6$ ,  $\text{R}^7$  and  $\text{R}^8$  has one or more water-soluble groups.

3. An ink for an ink jet according to claim 1, wherein in the formula (1)  $R^1$  represents hydrogen,  $C_{1-6}$  alkyl group or  $C_{1-6}$  substituted alkyl group.

4. An ink for an ink jet according to claim 1, wherein in the formula (1) X is  $-N=$  and Y is  $-C(R^8)=$ .

5. An ink for an ink jet according to claim 1, wherein in the formula (1)  $B^1$  is  $=C(R^6)-$  and  $B^2$  is  $-C(R^7)=$ .

6. An ink for an ink jet according to claim 1, wherein the formula (1) satisfies at least one of (i), (ii) and (ii)'.

7. An ink for an ink jet according to claim 1, wherein the formula (1) satisfies (i) and (iv).

8. An ink for an ink jet according to claim 1, wherein the polymer includes 0.01 to 3.0 mmol/g of an ionic group.

9. An ink for an ink jet according to claim 1, wherein the polymer includes 0.01 to 3.0 mmol/g of an ionic group, and the coloring composition is formed by emulsifying and dispersing coloring particulates which contain said polymer and the oil-soluble dye represented by formula (1) in a water-based dispersion medium.

10. An ink for an ink jet according to claim 1, wherein the polymer contains at least one kind of ionic group selected from carboxyl groups and sulfonate groups.

11. An ink for an ink jet according to claim 1, wherein the polymer is polyurethane or polyester.

Sub. 7  
12. An ink for an ink jet according to claim 1, wherein the coloring particulates are obtained by emulsifying and making into fine particles an organic solvent which includes the polymer and the oil-soluble dye, by one of adding water to the organic solvent, and adding the organic solvent into water.

13. An ink for an ink jet according to claim 1, wherein the ink

has a wavelength of maximum absorption ( $\lambda_{\max}(\text{nm})$ ) in a wavelength range from 510 to 560 nm; and when absorbance at  $\lambda_{\max}$  is regarded as 1, the absorbance is no less than 0.2 at ( $\lambda_{\max} + 75\text{nm}$ ), and the absorbance is no more than 0.4 at ( $\lambda_{\max} - 75\text{nm}$ ).

14. An ink for an ink jet according to claim 13, wherein the absorbance is no less than 0.1 at ( $\lambda_{\max} + 75\text{nm}$ ), and the absorbance is no more than 0.3 at ( $\lambda_{\max} - 75\text{nm}$ ).

Sub 3  
15. A coloring composition comprising:

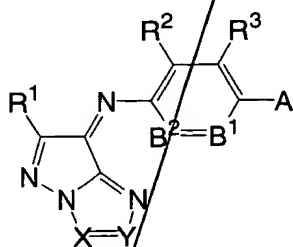
(a) a dispersion medium; and

(b) coloring particulates comprising:

(b-1) a polymer which is selected from the group consisting of polyurethanes, polyesters, polyamides, polyureas and polycarbonates; and

(b-2) an oil-soluble dye represented by formula (1):

Formula (1)





wherein  $R^1$  represents a hydrogen atom, aliphatic group, aromatic group, heterocyclic group, cyano,  $-OR^{11}$ ,  $-SR^{12}$ ,  $-CO_2R^{13}$ ,  $-OCOR^{14}$ ,  $-NR^{15}R^{16}$ ,  $-CONR^{17}R^{18}$ ,  $-SO_2R^{19}$ ,  $-SO_2NR^{20}R^{21}$ ,  $-NR^{22}CONR^{23}R^{24}$ ,  $-NR^{25}CO_2R^{26}$ ,  $-COR^{27}$ ,  $-NR^{28}COR^{29}$  or  $-NR^{30}SO_2R^{31}$ , and  $R^{11}$ ,  $R^{12}$ ,  $R^{13}$ ,  $R^{14}$ ,  $R^{15}$ ,  $R^{16}$ ,  $R^{17}$ ,  $R^{18}$ ,  $R^{19}$ ,  $R^{20}$ ,  $R^{21}$ ,  $R^{22}$ ,  $R^{23}$ ,  $R^{24}$ ,  $R^{25}$ ,  $R^{26}$ ,  $R^{27}$ ,  $R^{28}$ ,  $R^{29}$ ,  $R^{30}$  and  $R^{31}$  each represents independently a hydrogen atom, aliphatic group or aromatic group; wherein A represents  $-NR^4R^5$  or a hydroxyl group, and  $R^4$  and  $R^5$  each represents independently a hydrogen atom, aliphatic group, aromatic group or heterocyclic group; wherein  $B^1$  represents  $=C(R^6)-$  or  $=N-$  and  $B^2$  represents  $-C(R^7)=$  or  $-N=$ ; wherein  $R^2$ ,  $R^3$ ,  $R^6$  and  $R^7$  each represents independently a hydrogen atom, halogen atom, aliphatic group, aromatic group, heterocyclic group, cyano,  $-OR^{51}$ ,  $-SR^{52}$ ,  $-CO_2R^{53}$ ,  $-OCOR^{54}$ ,  $-NR^{55}R^{56}$ ,  $-CONR^{57}R^{58}$ ,  $-SO_2R^{59}$ ,  $-SO_2NR^{60}R^{61}$ ,  $-NR^{62}CONR^{63}R^{64}$ ,  $-NR^{65}CO_2R^{66}$ ,  $-COR^{67}$ ,  $-NR^{68}COR^{69}$  or  $-NR^{70}SO_2R^{71}$ , and  $R^{51}$ ,  $R^{52}$ ,  $R^{53}$ ,  $R^{54}$ ,  $R^{55}$ ,  $R^{56}$ ,  $R^{57}$ ,  $R^{58}$ ,  $R^{59}$ ,  $R^{60}$ ,  $R^{61}$ ,  $R^{62}$ ,  $R^{63}$ ,  $R^{64}$ ,  $R^{65}$ ,  $R^{66}$ ,  $R^{67}$ ,  $R^{68}$ ,  $R^{69}$ ,  $R^{70}$  and  $R^{71}$  each represents independently a hydrogen atom, aliphatic group or aromatic group; wherein  $R^2$  and  $R^3$ ,  $R^3$  and  $R^4$ ,  $R^4$  and  $R^5$ ,  $R^5$  and  $R^6$ , or  $R^6$  and  $R^7$  may be mutually bound to form a ring; wherein X and Y each represents independently  $C(R^8)=$  or  $N=$ ,  $R^8$

represents a hydrogen atom, aliphatic group or aromatic group, either X or Y shall represent N=, and X and Y shall not be simultaneously -N=; and wherein the formula (1) satisfies at least one of following (i) to (v):

(i) A represents  $-NR^4R^5$ ,  $R^4$  and  $R^5$  each represents independently a  $C_{1-18}$  alkyl group having a substituent group, the substituent group is at least one member selected from the group consisting of a heterocyclic group, cyano,  $-OR^{141}$ ,  $-SR^{142}$ ,  $-CO_2R^{143}$ ,  $-OCOR^{144}$ ,  $-NR^{145}R^{146}$ ,  $-CONR^{147}R^{148}$ ,  $-SO_2R^{149}$ ,  $-SO_2NR^{150}R^{151}$ ,  $-NR^{152}CONR^{153}R^{154}$ ,  $-NR^{155}CO_2R^{156}$ ,  $-COR^{157}$ ,  $-NR^{158}COR^{159}$  and  $-NR^{160}SO_2R^{161}$ , and  $R^{141}$ ,  $R^{142}$ ,  $R^{143}$ ,  $R^{144}$ ,  $R^{145}$ ,  $R^{146}$ ,  $R^{147}$ ,  $R^{148}$ ,  $R^{149}$ ,  $R^{150}$ ,  $R^{151}$ ,  $R^{152}$ ,  $R^{153}$ ,  $R^{154}$ ,  $R^{155}$ ,  $R^{156}$ ,  $R^{157}$ ,  $R^{158}$ ,  $R^{159}$ ,  $R^{160}$  and  $R^{161}$  each represents independently a hydrogen atom, aliphatic group or aromatic group;

(ii)  $R^2$  represents a substituted alkyl group;

(ii)'  $R^7$  represents a substituted alkyl group;

(iii)  $R^8$  represents an aryl group having 2 or more substituent groups;

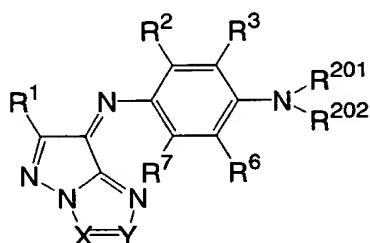
(iv) Two or more substituent groups represented by  $-NR^{170}SO_2R^{171}$  are present in the molecule, and  $R^{170}$  and  $R^{171}$  each represents independently a hydrogen atom, aliphatic group or aromatic group; and

(v) One or more carboxyl groups are present in the molecule.

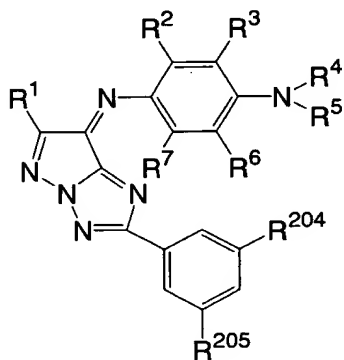
16. A coloring composition according to claim 15, wherein the oil-soluble dye is at least one compound represented by any one of

formulae (2-1) to (2-5):

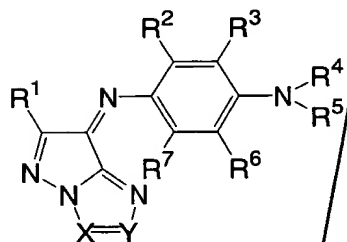
(2-1)



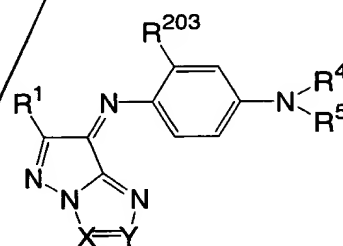
(2-3 a)



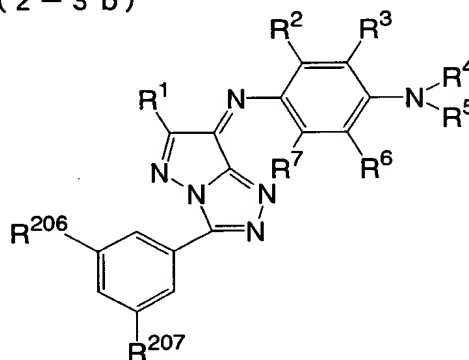
(2-4)



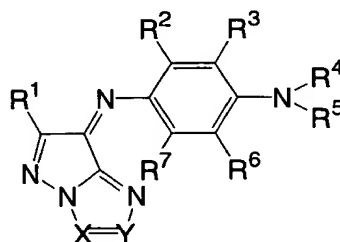
(2-2)



(2-3 b)



(2-5)



wherein in the formulae (2-1) to (2-5) X, Y, R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup> and R<sup>8</sup> have the same meanings as defined above in the formula (1);  
wherein in the formula (2-1) R<sup>201</sup> and R<sup>202</sup> each represents a C<sub>1-18</sub> alkyl

group having a substituent group, the substituent group is at least one member selected from the group consisting of a heterocyclic group, cyano,  $-OR^{141}$ ,  $-SR^{142}$ ,  $-CO_2R^{143}$ ,  $-OCOR^{144}$ ,  $-NR^{145}R^{146}$ ,  $-CONR^{147}R^{148}$ ,  $-SO_2R^{149}$ ,  $-SO_2NR^{150}R^{151}$ ,  $-NR^{152}CONR^{153}R^{154}$ ,  $-NR^{155}CO_2R^{156}$ ,  $-COR^{157}$ ,  $-NR^{158}COR^{159}$  and  $-NR^{160}SO_2R^{161}$ , and  $R^{141}$ ,  $R^{142}$ ,  $R^{143}$ ,  $R^{144}$ ,  $R^{145}$ ,  $R^{146}$ ,  $R^{147}$ ,  $R^{148}$ ,  $R^{149}$ ,  $R^{150}$ ,  $R^{151}$ ,  $R^{152}$ ,  $R^{153}$ ,  $R^{154}$ ,  $R^{155}$ ,  $R^{156}$ ,  $R^{157}$ ,  $R^{158}$ ,  $R^{159}$ ,  $R^{160}$  and  $R^{161}$  each represents independently a hydrogen atom, aliphatic group or aromatic group; wherein in the formula (2-2)  $R^{203}$  represents a  $C_{1-10}$  substituted alkyl group; wherein in the formulae (2-3a) and (2-3b),  $R^{204}$ ,  $R^{205}$ ,  $R^{206}$  and  $R^{207}$  each represents independently a cyano or a group having no more than  $C_{100}$  selected from the group consisting of an aliphatic group, aromatic group, heterocyclic group,  $-OR^{211}$ ,  $-SR^{212}$ ,  $-CO_2R^{213}$ ,  $-OCOR^{214}$ ,  $-NR^{215}R^{216}$ ,  $-CONR^{217}R^{218}$ ,  $-SO_2R^{219}$ ,  $-SO_2NR^{220}R^{221}$ ,  $-NR^{222}CONR^{223}R^{224}$ ,  $-NR^{225}CO_2R^{226}$ ,  $-COR^{227}$ ,  $-NR^{228}COR^{229}$  and  $-NR^{230}SO_2R^{231}$ , and  $R^{211}$ ,  $R^{212}$ ,  $R^{213}$ ,  $R^{214}$ ,  $R^{215}$ ,  $R^{216}$ ,  $R^{217}$ ,  $R^{218}$ ,  $R^{219}$ ,  $R^{220}$ ,  $R^{221}$ ,  $R^{222}$ ,  $R^{223}$ ,  $R^{224}$ ,  $R^{225}$ ,  $R^{226}$ ,  $R^{227}$ ,  $R^{228}$ ,  $R^{229}$ ,  $R^{230}$  and  $R^{231}$  each represents independently a hydrogen atom, aliphatic group or aromatic group; wherein in the formula (2-4) at least one of  $R^1$ ,  $R^2$ ,  $R^3$ ,  $R^4$ ,  $R^5$ ,  $R^6$ ,  $R^7$  and  $R^8$  has substituent groups represented by  $-NR^{271}SO_2R^{272}$ , two or more substituent groups represented by  $-NR^{271}SO_2R^{272}$  are contained in the molecule, and  $R^{271}$  and  $R^{272}$  each

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cut

represents independently a hydrogen atom, aliphatic group or aromatic group; and wherein in the formula (2-5) at least one of  $R^1$ ,  $R^2$ ,  $R^3$ ,  $R^4$ ,  $R^5$ ,  $R^6$ ,  $R^7$  and  $R^8$  has one or more water-soluble groups.

17. A coloring composition according to claim 15, wherein the coloring composition has a wavelength of maximum absorption ( $\lambda_{\max}$ (nm)) in a wavelength range from 510 to 560 nm; and when absorbance at  $\lambda_{\max}$  is regarded as 1, the absorbance is no less than 0.2 at ( $\lambda_{\max} + 75$ nm), and the absorbance is no more than 0.4 at ( $\lambda_{\max} - 75$ nm).

Emb 4  
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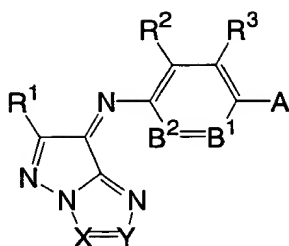
18. An ink jet recording method comprising the steps of:

- (1) preparing an ink for an ink jet; and
- (2) using the ink for recording in an ink-jet printing device;

wherein the ink comprising a coloring composition comprising:

- (a) a dispersion medium; and
- (b) coloring particulates comprising:
  - (b-1) a polymer which is selected from the group consisting of polyurethanes, polyesters, polyamides, polyureas and polycarbonates; and
  - (b-2) an oil-soluble dye represented by formula (1):

Formula (1)



wherein  $R^1$  represents a hydrogen atom, aliphatic group, aromatic group, heterocyclic group, cyano,  $-OR^{11}$ ,  $-SR^{12}$ ,  $-CO_2R^{13}$ ,  $-OCOR^{14}$ ,  $-NR^{15}R^{16}$ ,  $-CONR^{17}R^{18}$ ,  $-SO_2R^{19}$ ,  $-SO_2NR^{20}R^{21}$ ,  $-NR^{22}CONR^{23}R^{24}$ ,  $-NR^{25}CO_2R^{26}$ ,  $-COR^{27}$ ,  $-NR^{28}COR^{29}$  or  $-NR^{30}SO_2R^{31}$ , and  $R^{11}$ ,  $R^{12}$ ,  $R^{13}$ ,  $R^{14}$ ,  $R^{15}$ ,  $R^{16}$ ,  $R^{17}$ ,  $R^{18}$ ,  $R^{19}$ ,  $R^{20}$ ,  $R^{21}$ ,  $R^{22}$ ,  $R^{23}$ ,  $R^{24}$ ,  $R^{25}$ ,  $R^{26}$ ,  $R^{27}$ ,  $R^{28}$ ,  $R^{29}$ ,  $R^{30}$  and  $R^{31}$  each represents independently a hydrogen atom, aliphatic group or aromatic group; wherein A represents  $-NR^4R^5$  or a hydroxyl group, and  $R^4$  and  $R^5$  each represents independently a hydrogen atom, aliphatic group, aromatic group or heterocyclic group; wherein  $B^1$  represents  $=C(R^6)-$  or  $=N-$  and  $B^2$  represents  $-C(R^7)=$  or  $-N=$ ; wherein  $R^2$ ,  $R^3$ ,  $R^6$  and  $R^7$  each represents independently a hydrogen atom, halogen atom, aliphatic group, aromatic group, heterocyclic group, cyano,  $-OR^{51}$ ,  $-SR^{52}$ ,  $-CO_2R^{53}$ ,  $-OCOR^{54}$ ,  $-NR^{55}R^{56}$ ,  $-CONR^{57}R^{58}$ ,  $-SO_2R^{59}$ ,  $-SO_2NR^{60}R^{61}$ ,  $-NR^{62}CONR^{63}R^{64}$ ,  $-NR^{65}CO_2R^{66}$ ,  $-COR^{67}$ ,  $-NR^{68}COR^{69}$  or  $-NR^{70}SO_2R^{71}$ , and  $R^{51}$ ,  $R^{52}$ ,  $R^{53}$ ,  $R^{54}$ ,  $R^{55}$ ,  $R^{56}$ ,  $R^{57}$ ,  $R^{58}$ ,  $R^{59}$ ,  $R^{60}$ ,  $R^{61}$ ,  $R^{62}$ ,  $R^{63}$ ,  $R^{64}$ ,  $R^{65}$ ,  $R^{66}$ ,  $R^{67}$ ,  $R^{68}$ ,  $R^{69}$ ,  $R^{70}$  and  $R^{71}$  each represents independently a hydrogen atom, aliphatic group or aromatic group; wherein  $R^2$  and  $R^3$ ,  $R^3$  and  $R^4$ ,  $R^4$  and

Enk  
a4  
cont.

$R^5$ ,  $R^5$  and  $R^6$ , or  $R^6$  and  $R^7$  may be mutually bound to form a ring; wherein X and Y each represents independently  $C(R^8)=$  or  $N=$ ,  $R^8$  represents a hydrogen atom, aliphatic group or aromatic group, either X or Y shall represent  $N=$ , and X and Y shall not be simultaneously  $-N=$ ; and wherein the formula (1) satisfies at least one of following (i) to (v):

(i) A represents  $-NR^4R^5$ ,  $R^4$  and  $R^5$  each represents independently a  $C_{1-18}$  alkyl group having a substituent group, the substituent group is at least one member selected from the group consisting of a heterocyclic group, cyano,  $-OR^{141}$ ,  $-SR^{142}$ ,  $-CO_2R^{143}$ ,  $-OCOR^{144}$ ,  $-NR^{145}R^{146}$ ,  $-CONR^{147}R^{148}$ ,  $-SO_2R^{149}$ ,  $-SO_2NR^{150}R^{151}$ ,  $-NR^{152}CONR^{153}R^{154}$ ,  $-NR^{155}CO_2R^{156}$ ,  $-COR^{157}$ ,  $-NR^{158}COR^{159}$  and  $-NR^{160}SO_2R^{161}$ , and  $R^{141}$ ,  $R^{142}$ ,  $R^{143}$ ,  $R^{144}$ ,  $R^{145}$ ,  $R^{146}$ ,  $R^{147}$ ,  $R^{148}$ ,  $R^{149}$ ,  $R^{150}$ ,  $R^{151}$ ,  $R^{152}$ ,  $R^{153}$ ,  $R^{154}$ ,  $R^{155}$ ,  $R^{156}$ ,  $R^{157}$ ,  $R^{158}$ ,  $R^{159}$ ,  $R^{160}$  and  $R^{161}$  each represents independently a hydrogen atom, aliphatic group or aromatic group;

(ii)  $R^2$  represents a substituted alkyl group;

(ii)'  $R^7$  represents a substituted alkyl group;

(iii)  $R^8$  represents an aryl group having 2 or more substituent groups;

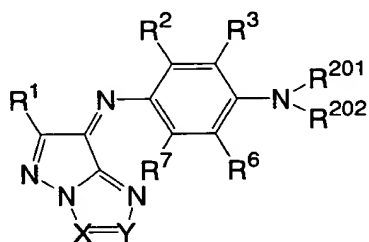
(iv) Two or more substituent groups represented by  $-NR^{170}SO_2R^{171}$  are present in the molecule, and  $R^{170}$  and  $R^{171}$  each represents

independently a hydrogen atom, aliphatic group or aromatic group; and

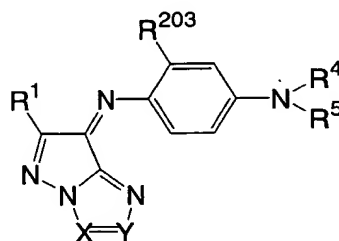
(v) One or more carboxyl groups are present in the molecule.

19. An ink jet recording method according to claim 18, wherein the oil-soluble dye is at least one compound represented by any one of formulae (2-1) to (2-5):

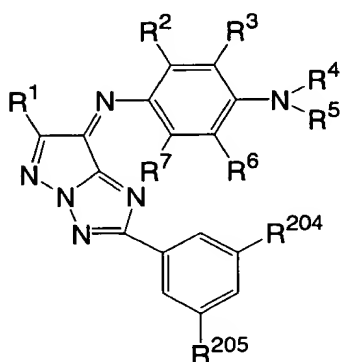
(2-1)



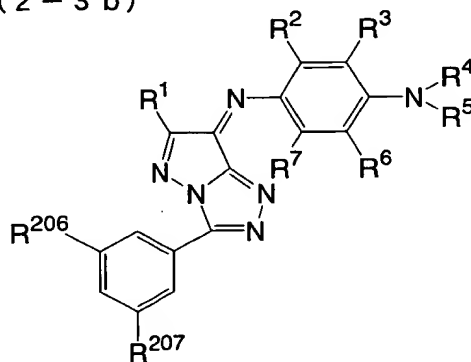
(2-2)



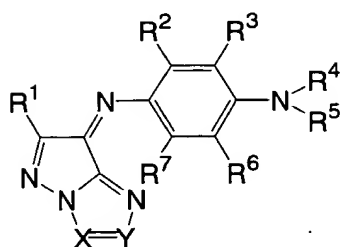
(2-3 a)



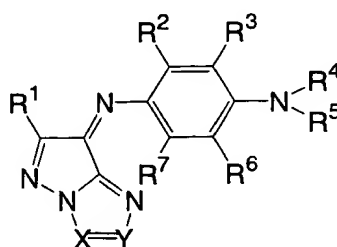
(2-3 b)



(2-4)



(2-5)





wherein in the formulae (2-1) to (2-5) X, Y, R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>  
 and R<sup>8</sup> have the same meanings as defined above in the formula (1);  
 wherein in the formula (2-1) R<sup>201</sup> and R<sup>202</sup> each represents a C<sub>1-18</sub> alkyl  
 group having a substituent group, the substituent group is at least one  
 member selected from the group consisting of a heterocyclic group,  
 cyano, -OR<sup>141</sup>, -SR<sup>142</sup>, -CO<sub>2</sub>R<sup>143</sup>, -OCOR<sup>144</sup>, -NR<sup>145</sup>R<sup>146</sup>, -CONR<sup>147</sup>R<sup>148</sup>, -  
 SO<sub>2</sub>R<sup>149</sup>, -SO<sub>2</sub>NR<sup>150</sup>R<sup>151</sup>, -NR<sup>152</sup>CONR<sup>153</sup>R<sup>154</sup>, -NR<sup>155</sup>CO<sub>2</sub>R<sup>156</sup>, -COR<sup>157</sup>, -  
 NR<sup>158</sup>COR<sup>159</sup> and -NR<sup>160</sup>SO<sub>2</sub>R<sup>161</sup>, and R<sup>141</sup>, R<sup>142</sup>, R<sup>143</sup>, R<sup>144</sup>, R<sup>145</sup>, R<sup>146</sup>, R<sup>147</sup>, R<sup>148</sup>,  
 R<sup>149</sup>, R<sup>150</sup>, R<sup>151</sup>, R<sup>152</sup>, R<sup>153</sup>, R<sup>154</sup>, R<sup>155</sup>, R<sup>156</sup>, R<sup>157</sup>, R<sup>158</sup>, R<sup>159</sup>, R<sup>160</sup> and R<sup>161</sup> each  
 represents independently a hydrogen atom, aliphatic group or aromatic  
 group; wherein in the formula (2-2) R<sup>203</sup> represents a C<sub>1-10</sub> substituted  
 alkyl group; wherein in the formulae (2-3a) and (2-3b), R<sup>204</sup>, R<sup>205</sup>, R<sup>206</sup> and  
 R<sup>207</sup> each represents independently a cyano or a group having no more  
 than C<sub>100</sub> selected from the group consisting of an aliphatic group,  
 aromatic group, heterocyclic group, -OR<sup>211</sup>, -SR<sup>212</sup>, -CO<sub>2</sub>R<sup>213</sup>, -OCOR<sup>214</sup>, -  
 NR<sup>215</sup>R<sup>216</sup>, -CONR<sup>217</sup>R<sup>218</sup>, -SO<sub>2</sub>R<sup>219</sup>, -SO<sub>2</sub>NR<sup>220</sup>R<sup>221</sup>, -NR<sup>222</sup>CONR<sup>223</sup>R<sup>224</sup>, -  
 NR<sup>225</sup>CO<sub>2</sub>R<sup>226</sup>, -COR<sup>227</sup>, -NR<sup>228</sup>COR<sup>229</sup> and -NR<sup>230</sup>SO<sub>2</sub>R<sup>231</sup>, and R<sup>211</sup>, R<sup>212</sup>,  
 R<sup>213</sup>, R<sup>214</sup>, R<sup>215</sup>, R<sup>216</sup>, R<sup>217</sup>, R<sup>218</sup>, R<sup>219</sup>, R<sup>220</sup>, R<sup>221</sup>, R<sup>222</sup>, R<sup>223</sup>, R<sup>224</sup>, R<sup>225</sup>, R<sup>226</sup>, R<sup>227</sup>,  
 R<sup>228</sup>, R<sup>229</sup>, R<sup>230</sup> and R<sup>231</sup> each represents independently a hydrogen atom,  
 aliphatic group or aromatic group; wherein in the formula (2-4) at least

Sub  
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cont

one of  $R^1, R^2, R^3, R^4, R^5, R^6, R^7$  and  $R^8$  has substituent groups represented by  $-NR^{271}SO_2R^{272}$ , two or more substituent groups represented by  $-NR^{271}SO_2R^{272}$  are contained in the molecule, and  $R^{271}$  and  $R^{272}$  each represents independently a hydrogen atom, aliphatic group or aromatic group; and wherein in the formula (2-5) at least one of  $R^1, R^2, R^3, R^4, R^5, R^6, R^7$  and  $R^8$  has one or more water-soluble groups.

20. An ink jet recording method according to claim 18, wherein the ink has a wavelength of maximum absorption ( $\lambda_{\max}(\text{nm})$ ) in a wavelength range from 510 to 560 nm; and when absorbance at  $\lambda_{\max}$  is regarded as 1, the absorbance is no less than 0.2 at ( $\lambda_{\max} + 75\text{nm}$ ), and the absorbance is no more than 0.4 at ( $\lambda_{\max} - 75\text{nm}$ ).

Add  
as